

REMARKS

Claims 19-22, 34 and 35 are pending in the present application. Claims 19-22 have been amended without prejudice and without acquiescence to clarify the invention. Support for these amendments can be found throughout the specification, more specifically, paragraphs [0113]-[0127]. No new matter has been added.

The outstanding issues are as follows:

- Claim 19 is objected to because said claim does not end with a period.
- Claims 19-22, 34 and 35 have been rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory algorithm type subject matter, maintained from the previous office action mailed August 17, 2004.
- Claims 19-22, 34 and 35 are rejected under 35 U.S.C. §102(b) as being clearly anticipated by Hilser et al. (1996), maintained from previous office action mailed August 17, 2004.

Applicant has corrected the objection stated above. Applicant respectfully traverses the outstanding rejections, and Applicant respectfully requests reconsideration and withdrawal thereof in light of the amendments and remarks contained herein.

I. Claim Objection

The Examiner has objected to claim 19 because it does not end in a period. In order to advance prosecution, Applicants have amended claim 19 as requested by the Examiner.

II. 35 U.S.C. § 101

Claims 19-22, 34 and 35 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory algorithm type subject matter. Applicants traverse.

The Examiner argues in the Office Action on page 3, paragraph 11, that the invention is not practical because "it is reasonably construed as an algorithmic process which does not result in the controlling of any physical steps resulted from the data manipulation."

Applicants assert that this invention is based on an algorithm that converts amino acid residue sequences, which are otherwise a useless string of letters, into a tangible protein model based on determining the energetic states of the protein, for example stability, enthalpy, and entropy. The model is founded on statistical probabilities since there are no known concrete methods that can accurately predict the structure of a protein due to the myriad protein and environmental variables. The Examiner is reminded that the question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to – process, machine, manufacture, or composition of matter – but rather on the essential characteristic of the subject matter, in particular, its practical utility. See *re Iwashashi*, 888 F. 2d 1370, 1374, 12USPQ 2d 1908, 1911 (Fed. Cir. 1989). A method of determining a protein fold has a broad range of practical utilities in the world of life sciences, more specifically pharmacology.

Yet further, Applicants respectfully remind the Examiner that “every step-by-step process, be it electronic or chemical or mechanical, involves an algorithm in the broad sense of the term. See *Alappat*, 33 F.3d at 1544, 31 USPQ2d at 1557. Since §101 expressly includes processes as a category of inventions which may be patented and §101(b) further defines the word “process” as meaning “process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material” it follows that it is no ground for holding a claim is directed to non-statutory subject matter to say it includes or is directed to an algorithm.”

In view of the above arguments, Applicants assert that the pending claims produce a tangible protein folding model. Further, simply because the claims may involve an algorithm does not imply that it covers non-statutory subject matter. Thus, the Applicants respectfully request the rejection be withdrawn.

III. 35 U.S.C. §102(b)

Claims 19-22, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Hilser et al. (1996). Applicants traverse.

Applicants assert that the primary crux of Hilser et al. (1996) is to predict the folding of proteins from structure, not defining the protein fold using energetics as claimed in the

present invention. This is further exemplified by the sentence from Hilser et al. that the Examiner quotes on page 6 of the office action "we presented a structure-based thermodynamic approach...". See p. 757, col. 1, last paragraph.

Hilser et al does not expressly or inherently disclose the intended purpose of this invention, which is a method to identify a protein fold by energetics, not by using structural elements. In view of this and in order to advance the prosecution of the present invention, Applicants have amended independent claim 19 without prejudice and without acquiescence to clarify the scope of the present invention. In view of the above amendment, Applicants believe the pending application is in condition for allowance.

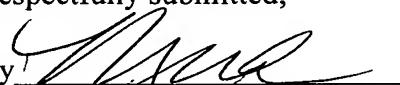
CONCLUSION

In view of the above arguments and amendment, Applicants believe the pending application is in condition for allowance. If the Examiner has any questions concerning this response, the Examiner is requested to contact the undersigned for a quick resolution.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2375, under Order No. HO-P02070US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

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